

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

In the Matter of

COVER SHEET

Application of Duke Energy Carolinas, LLC for
Approval of Decision to Incur
Nuclear Generation Pre-Construction Costs

DOCKET
NUMBER: 2007-440-E

(Please type or print)

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DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition ☐ Request for item to be placed on Commission's Agenda expeditiously

☒ Other: Direct Testimony of Ellen Ruff

| INDUSTRY (Check one) | NATURE OF ACTION (Check all that apply) | | | |
|--|--|--|---|--|
| <input checked="" type="checkbox"/> Electric | <input type="checkbox"/> Affidavit | <input type="checkbox"/> Letter | <input type="checkbox"/> Request | |
| <input type="checkbox"/> Electric/Gas | <input type="checkbox"/> Agreement | <input type="checkbox"/> Memorandum | <input type="checkbox"/> Request for Certificatio | |
| <input type="checkbox"/> Electric/Telecommunications | <input type="checkbox"/> Answer | <input type="checkbox"/> Motion | <input type="checkbox"/> Request for Investigator | |
| <input type="checkbox"/> Electric/Water | <input type="checkbox"/> Appellate Review | <input type="checkbox"/> Objection | <input type="checkbox"/> Resale Agreement | |
| <input type="checkbox"/> Electric/Water/Telecom. | <input type="checkbox"/> Application | <input type="checkbox"/> Petition | <input type="checkbox"/> Resale Amendment | |
| <input type="checkbox"/> Electric/Water/Sewer | <input type="checkbox"/> Brief | <input type="checkbox"/> Petition for Reconsideration | <input type="checkbox"/> Reservation Letter | |
| <input type="checkbox"/> Gas | <input type="checkbox"/> Certificate | <input type="checkbox"/> Petition for Rulemaking | <input type="checkbox"/> Response | |
| <input type="checkbox"/> Railroad | <input type="checkbox"/> Comments | <input type="checkbox"/> Petition for Rule to Show Cause | <input type="checkbox"/> Response to Discovery | |
| <input type="checkbox"/> Sewer | <input type="checkbox"/> Complaint | <input type="checkbox"/> Petition to Intervene | <input type="checkbox"/> Return to Petition | |
| <input type="checkbox"/> Telecommunications | <input type="checkbox"/> Consent Order | <input type="checkbox"/> Petition to Intervene Out of Time | <input type="checkbox"/> Stipulation | |
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Discovery | <input type="checkbox"/> Prefiled Testimony | <input type="checkbox"/> Subpoena | |
| <input type="checkbox"/> Water | <input type="checkbox"/> Exhibit | <input type="checkbox"/> Promotion | <input type="checkbox"/> Tariff | |
| <input type="checkbox"/> Water/Sewer | <input type="checkbox"/> Expedited Consideration | <input type="checkbox"/> Proposed Order | <input checked="" type="checkbox"/> Other: | |
| <input type="checkbox"/> Administrative Matter | <input type="checkbox"/> Interconnection Agreement | <input type="checkbox"/> Protest | | |
| <input type="checkbox"/> Other: | <input type="checkbox"/> Interconnection Amendment | <input type="checkbox"/> Publisher's Affidavit | | |
| | <input type="checkbox"/> Late-Filed Exhibit | <input type="checkbox"/> Report | | |

BEFORE
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SOUTH CAROLINA
DOCKET NO. 2007-440-E

| | | |
|---|---|-----------------------|
| Application of Duke Energy Carolinas, LLC for |) | DIRECT TESTIMONY OF |
| Approval of Decision to Incur |) | ELLEN T. RUFF FOR |
| Nuclear Generation Pre-Construction Costs |) | DUKE ENERGY CAROLINAS |

DIRECT TESTIMONY OF
ELLEN T. RUFF FOR
DUKE ENERGY CAROLINAS

1 **Q. PLEASE STATE YOUR NAME, ADDRESS, AND POSITION WITH**
2 **DUKE ENERGY CAROLINAS.**

3 A. My name is Ellen T. Ruff, and my business address is 526 South Church Street,
4 Charlotte, North Carolina. I am President of Duke Energy Carolinas, LLC
5 (hereinafter, "Duke Energy Carolinas" or the "Company") and have overall
6 accountability for Duke Energy Carolinas' financial results, operational
7 performance, and customer service.

8 **Q. PLEASE STATE BRIEFLY YOUR EDUCATION, BACKGROUND, AND**
9 **PROFESSIONAL AFFILIATIONS.**

10 A. I am a graduate of Simmons College with a Bachelor of Arts in Business. I also
11 have a Juris Doctor degree from the University of North Carolina at Chapel Hill.
12 I also completed the Harvard Business School's Advanced Management Program.
13 I am a member of the North Carolina State Bar, and the Mecklenburg County and
14 American Bar Associations. I also serve on the Executive Committee of the
15 North Carolina Citizens for Business and Industry board of directors.

16 **Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND**
17 **EXPERIENCE.**

18 A. I joined Duke Power Company (now known as Duke Energy Carolinas) in 1978
19 as an attorney in the Legal Department. I was named Vice President and General
20 Counsel of Electric Operations following the creation of Duke Energy
21 Corporation ("Duke Energy") in 1997. I was named Vice President and General
22 Counsel of Corporate, Gas and Electric Operations in January 1999 and Senior
23 Vice President and General Counsel of Duke Energy Corporation in February

1 2001. I was appointed Senior Vice President of Asset Management for Duke
2 Power in August 2001. I became Senior Vice President of Power Policy and
3 Planning in February 2003 and Group Vice President of Power Policy and
4 Planning in March 2004. I became Group Vice President of Planning and
5 External Relations for Duke Power in March 2005. I assumed my current
6 position in April 2006.

7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

8 A. Duke Energy Carolinas has applied to the Commission for approval of its decision
9 to incur pre-construction costs of up to \$230 million through December 31, 2009
10 for the Company's proposed William States Lee, III Nuclear Station to be located
11 in Cherokee County, South Carolina ("Lee Nuclear Station"). The South Carolina
12 allocable portion of these total development costs would be approximately 28%.
13 The purpose of my testimony is to discuss the importance of the requested
14 approval to Duke Energy Carolinas, and how the Company's proposed Lee
15 Nuclear Station fits into our strategic plans to meet customers' needs for reliable,
16 cost-effective electricity while modernizing our fleet, increasing diversity among
17 our generation resources, reducing our environmental footprint, and increasing
18 our energy efficiency and conservation programs and promotion of renewable
19 resources.

20 In addition to my testimony, Dhiaa Jamil, Group Executive and Chief
21 Nuclear Officer for Duke Energy Carolinas, testifies to the details of the
22 development work and estimated costs for the Lee Nuclear Station; and Janice
23 Hager, Managing Director, Integrated Resource Planning and Environmental

1 Strategy for Duke Energy, testifies regarding the integrated resource planning
2 analysis that supports the development of the Lee Nuclear Station.

3 **Q. WHY IS DUKE ENERGY CAROLINAS DEVELOPING THE LEE**
4 **NUCLEAR STATION?**

5 A. Duke Energy Carolinas has an obligation to plan for and meet our customers'
6 energy needs, and we must do so reliably and cost-effectively in the face of an
7 uncertain future. Because the Lee Nuclear Station has significant value to our
8 customers in the face of the uncertainties posed by future economic,
9 environmental, regulatory, and operating circumstances, it is prudent for us to
10 take the necessary development activities to preserve the Lee Nuclear Station as a
11 resource option. The Company's need for new base load generation resources
12 over the next decade, combined with the need for greater fuel diversity and a
13 commitment to reducing Duke Energy Carolinas' carbon footprint, make the
14 continued evaluation and development of new nuclear generation an essential part
15 of prudent future resource planning.

16 **Q. HOW DOES THE DEVELOPMENT OF THE LEE NUCLEAR STATION**
17 **FIT WITH DUKE ENERGY CAROLINAS' STRATEGIC PLANS TO**
18 **MEET CUSTOMER NEEDS?**

19 A. Duke Energy Carolinas has developed a strategic plan to meet sustained customer
20 load growth while maintaining prudent flexibility to respond to dynamic
21 regulatory, environmental and operating circumstances. The Lee Nuclear Station
22 is a key component of Duke Energy Carolinas' comprehensive modernization
23 plan, which also includes increased energy efficiency and demand-response

1 programs, renewable energy resources, new natural gas resources, and the new
2 advanced clean coal Cliffside Unit 6. In each of the past five years, Duke Energy
3 Carolinas has added approximately 50,000 new customer accounts. Each account
4 typically represents an even greater number of actual users of electricity at each
5 location. As Company witness Janice Hager discusses in her testimony, the
6 recently-filed 2007 Annual Plan demonstrates that Duke Energy Carolinas has a
7 cumulative need for approximately 7,000 MW of new generation capacity by
8 2018, which grows to approximately 11,000 MW by 2027.

9 In addition to meeting our customers' growing energy needs, the
10 Company must also consider a changing regulatory landscape. Duke Energy
11 Carolinas is committed to reducing its environmental footprint. As part of the
12 Company's commitments in the Cliffside advanced clean coal Certificate of
13 Public Convenience and Necessity ("CPCN") proceeding, North Carolina Utilities
14 Commission ("NCUC") Docket No. E-7, Sub 790 and associated air permit issued
15 by the North Carolina Department of Environment and Natural Resources, we
16 will retire approximately 1,000 MW of older, less-efficient coal units by
17 December 31, 2018. Importantly, of the base load resource options available,
18 nuclear generation is the only viable resource with no carbon dioxide (CO₂) or
19 other greenhouse gas emissions. As a result of the potential for future regulatory
20 carbon constraints, the continued development of the Lee Nuclear Station is even
21 more prudent.

1 **Q. WHY IS DUKE ENERGY CAROLINAS SEEKING APPROVAL OF ITS**
2 **DECISION TO INCUR DEVELOPMENT COSTS THROUGH**
3 **DECEMBER 31, 2009?**

4 A. Duke Energy Carolinas incurred total system-wide development costs of \$69.6
5 million, including \$8.3 million in accruals, through December 31, 2007.
6 However, nuclear generation facilities have a very long lead time and much work
7 remains that will require the continued expenditure of significant funds during the
8 development phases. In his testimony, Company witness Dhiaa Jamil details the
9 development work already conducted, as well as the anticipated development
10 work needed and costs to be incurred during calendar years 2008 and 2009 to
11 preserve nuclear generation as an available resource option to serve customers'
12 needs in the 2018 timeframe.

13 The General Assembly of South Carolina expressed its support for new
14 nuclear generation in the June 1, 2006, Joint Resolution, "A Concurrent
15 Resolution to Advance the Need for Electric Utilities to Build New Nuclear
16 Power Plants in South Carolina and to Urge the Office of Regulatory Staff and the
17 Public Service Commission to Encourage Such Consideration," H. 5236. In
18 addition, in 2007, the legislatures in both South Carolina and North Carolina
19 passed legislation that expressly provides for commission approval of a utility's
20 decision to incur nuclear pre-construction costs, as well as provides for additional
21 assurances and for recovery of nuclear financing costs during construction. We
22 believe that the assurances sought by this application are consistent with the new
23 law.

1 The Lee Nuclear Station is the largest single capital project in the history
2 of Duke Energy Carolinas. Duke Energy Corporation plans to spend \$23 billion
3 in total on capital projects over the next five years to ensure continued reliable
4 and cost-effective service for its customers. Accordingly, the assurance sought by
5 this Application is critical to the Company's financial well-being and to the ability
6 of Duke Energy Carolinas' customers to continue to count as an option this more
7 diverse, greenhouse gas emission-free, generation source.

8 **Q. HAS THE FINAL DECISION BEEN MADE TO CONSTRUCT THE LEE**
9 **NUCLEAR STATION?**

10 A. No. Duke Energy Carolinas will retain substantial flexibility to adjust the
11 development and construction plans in light of additional information to be gained
12 in future years. The Company's annual integrated resource planning filing and
13 subsequent filings related to the Lee Nuclear Station will enable the Commission
14 to review and evaluate future decisions to ensure that the final result is prudent
15 and in customers' long-term best interests. However, given what we know now,
16 continuing to develop the Lee Nuclear Station to have the option of bringing it
17 online in the 2018 timeframe is in our customers' interests.

18 **Q. WHAT IS THE STATUS OF OTHER RELATED REGULATORY**
19 **APPROVALS FOR THE LEE NUCLEAR STATION?**

20 A. The regulatory approval process for the Lee Nuclear Station is lengthy and
21 complex. We have taken the first steps toward these regulatory approvals. Duke
22 Energy Carolinas filed a Combined Construction and Operating License
23 Application with the Nuclear Regulatory Commission on December 13, 2007, for

1 the Lee Nuclear Station. We also filed an application for approval of the decision
2 to incur pre-construction nuclear generation development expenses for the Lee
3 Nuclear Station with the North Carolina Utilities Commission on December 7,
4 2007. We have not yet filed an application for a CPCN with the Commission, and
5 currently do not anticipate making such a filing until the second quarter of 2008 at
6 the earliest.

7 **Q. WHAT IS THE STATUS OF ANY OPPORTUNITIES FOR JOINT**
8 **OWNERSHIP OF THE LEE NUCLEAR STATION?**

9 A. The Southern Company elected to withdraw from the prior joint development
10 agreement related to the Lee Nuclear Station and Duke Energy Carolinas is
11 independently developing the Lee Nuclear Station. As with any resource
12 addition, however, the Company will continue to assess opportunities for joint
13 ownership or financial arrangements that could be beneficial for our customers.
14 Duke Energy Carolinas will update the Commission should there be any
15 developments regarding joint ownership decisions for the Lee Nuclear Station.

16 **Q. WHY DOES DUKE ENERGY CAROLINAS BELIEVE THAT THE**
17 **COMMISSION SHOULD GRANT ITS APPLICATION?**

18 A. For all the reasons discussed in my testimony and those of Duke Energy
19 Carolinas' other witnesses, the continued development of the Lee Nuclear Station
20 is valuable and important for our customers. We believe that the decision to incur
21 total pre-construction costs of up to \$230 million through December 31, 2009 is
22 prudent and reasonable. The approval sought by this application will provide

1 needed additional assurance that the Lee Nuclear Station will continue to be an
2 option to serve Duke Energy Carolinas' customers in the 2018 timeframe.

3 **Q. DOES THIS COMPLETE YOUR PRE-FILED DIRECT TESTIMONY?**

4 **A. Yes, it does.**